

MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
30	31				1				1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30			

20th week
131-234

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Tuesday

Solution

Q-2 A company with a fleet of 150 cars.

Found that emission system of 7 out of 22 cars of 22 cars test failed to meet pollution guidelines.

- (a) Write a hypothesis to test if more than 20% of entire fleet might be out of compliance.
- (b) Test the hypothesis based on the binomial distribution & report p-value.
- (c) Is the test significant at 10%, 5%, 1% level.

step 1) Null hypothesis.

$\Rightarrow H_0 = P = 20\%$

$H_0 = P = 0.20$ - Null hypothesis

Alternate hypothesis

$H_A = P > 0.20$ - Alternate hypothesis.

step b - The sample size is more than 10% of total cars fleet i.e. 150. The binomial distribution is not possible.

Secondly it is not clear sample is random sample so no need to proceed with the test.

Notes